NON-SPECIFIC URETHRITIS INVESTIGATED BY ZIEHL-NEELSEN STAINING OF THE URETHRAL DISCHARGE*

BY

A. I. MORRISON

Special Treatment Centre, Queens Road, Barnsley, Yorks.

The first description of abacterial urethritis is attributed to Guiard (1897) and his observation was confirmed by Barlow (1899) who also reported that contagious discharges could occur in which no organisms were detectable. Conventionally, when cases of non-gonococcal urethritis are examined by Gram-stained smears, if no organisms are seen the discharge is termed "abacterial"; if a mixture of organisms is present the disorder is frequently termed "non-specific". For over 70 years attempts to identify causative organisms in non-gonococcal urethritis have met with only partial success. Some of the investigations carried out on mycoplasmata, *Haemophilus vaginalis*, anaerobic organisms, viruses, and on the role of allergy have been reviewed by Morrison (1967). The organisms found in cases of non-specific urethritis may include staphylococci, streptococci, diphtheroids, coliforms, *B. subtilis*, and *B. proteus*. It is notable that Döderlein's bacillus, though normally present in the vagina from the onset of menstruation to the menopause, is almost never seen in smears of male urethral discharges. Harkness (1950) described a case of desquamative urethritis in which *B. crassus* was found, but he considered it a commensal; he also referred to one case described and another quoted by Brünauer (1927).

In cases of non-specific urethritis there is frequently a lack of genital cleanliness, particularly in uncircumcised men, and in their sexual partners the presence of smegma around the clitoris and around the labia is as frequent. It has, therefore, seemed reasonable to consider the possible role of the smegma bacillus in non-specific urethritis. Smegma bacilli, though Gram-positive, are not easily stained by this method and are therefore unlikely to be seen during routine smear examination in cases of non-specific urethritis.

In this investigation, in addition to standard procedures an acid-fast staining method has been employed.

Methods

In male cases, Gram-stained and wet smears of the urethral discharge were examined in the clinic to exclude *N. gonorrhoeae*, *Candida albicans* and *Trichomonas vaginalis*. The stained slide results were confirmed in the laboratory to which additional specimens of urethral secretions for culture were submitted in Stuart's transport medium.

In female cases, Gram-stained smears from the urethra, cervix, and vagina and wet smears of the vaginal secretion were read in the clinic and laboratory confirmation was carried out as in the male cases.

An extra smear of the urethral discharge was taken from each man, and from each woman a smear was taken from the labia minora and vestibule. If no gonococci, candida, or trichomonads were seen in the routine smears, these extra smears were stained by the Ziehl-Neelsen method described by Gurr (1957).

Case Material

There were 110 men, all white and all born in the United Kingdom: their ages ranged from 15 to 63 years (average 36), and 65 were single and 45 married. These cases were grouped according to circumcision: Group A, circumcised, comprised 28 men, and Group B, uncircumcised, 82 men.

There were 89 women, also all white and born in the United Kingdom: their ages ranged from 15 to 45 years (average 24.5), and 54 were single and 35 married.

Findings and Discussions

Males One (3.6 per cent.) of the 28 circumcised men in Group A and four (4.9 per cent.) of the 82 uncircumcised men in Group B had acid-fast organisms in their urethral smears. The overall incidence of positive results was five in 110 cases (4.5 per cent.) (Table I, overleaf). There is very little difference between the two groups or between each group and the overall percentage. There were about three times as many uncircumcised patients as circumcised, and the majority of the former had an accumulation of smegma beneath the prepuce, but these two factors seemed to have had no

*Received for publication March 28, 1968.

effect on the results. In the case of the one uncircumcised man whose sexual contact was examined and found to have acid-fast organisms, there is the possibility that his urethral smear findings were due to contamination from his own smegma, but this seems unlikely as there would certainly have been similar cases in the series. These results support the contention of Harkness (1950) that it is exceptional for preputial discharges due to non-gonococcal organisms to infect the mucous membrane of the urethra.

TABLE I
RESULTS OF SMEARS FOR ACID-FAST ORGANISMS

Sex		No. of Cases	Acid-fast Organisms Positive	
			No.	Per cent.
Male	A. Circumcised	28	1*	3.6
	B. Uncircumcised	82	4†	4.9
	Total	110	5	4.5
Female		89	41	46

*Wife refused to attend. †Three consorts not available for examination; one had acid-fast organism in labial smear.

Females 89 women were examined and acid-fast organisms were present in the labial smears from 41 (46 per cent.). Despite this only five men had been found to harbour this organism. The sum of the evidence obtained from examinations of both men and women indicates that the smegma bacillus does not play a causal role in non-specific urethritis.

64 (72 per cent.) of the 89 women had a cervical erosion; of 31 male contacts of these women who were available for examination, five (16 per cent.) were circumcised and 26 (84 per cent.) uncircumcised. The remaining 25 women had no cervical erosion: 16 male contacts were available for examination, and five (31 per cent.) were circumcised, and eleven (69 per cent.) uncircumcised. It seems likely, therefore, that circumcision bears no direct relationship to the presence of cervical erosion in the female sexual partner (Table II).

TABLE II
CERVICAL EROSION IN FEMALES RELATED TO CIRCUMCISION OF SEXUAL PARTNERS

Cervical Erosion			Male Consorts		
			Circumcised Uncircumcised		Total Examined
Present	No.	64	5	26	31
	Per cent.	72	16	84	—
Absent	No.	25	5	11	16
	Per cent.	28	31	69	—
Total Females		89	10	37	47

Summary

110 men with non-specific urethritis and 89 women were examined for the presence of acid-fast organisms in the genital secretions. Urethral smears in male cases and smears from the labia minora and vestibule in female cases were stained by the Ziehl-Neelsen method. Acid-fast organisms were present in labial smears in 46 per cent. of the women but were present in urethral smears in only 4.5 per cent. of the men. Circumcision appeared to have no bearing on the incidence of acid-fast organisms in the men and also appeared to be unrelated to the presence or absence of cervical erosion in their female sexual partners. It is thought unlikely that acid-fast organisms play a causal role in non-specific urethritis.

I thank Mr J. Oliver, Senior State Enrolled Nurse of the Special Treatment Centre, Barnsley, for the Ziehl-Neelsen stained smears; Mr A. Tunstall of the Photographic Department, Royal Hospital, Sheffield; and Mr F. Allott, A.I.T.V., State Enrolled Nurse of the Special Treatment Centre, Royal Hospital, Sheffield, for the photomicrographs.

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L'étude de l'urétrite non-spécifique en colorant les pertes urétrales par la méthode de Ziehl-Neelsen

RÉSUMÉ

110 hommes atteints d'urétrite non-spécifique et 89 femmes ont été examinés pour la présence d'organismes acido-résistants dans les sécrétions génitales. Des frottis de l'urètre des hommes et ceux des lèvres mineures et du vestibule des femmes ont été colorés par la méthode de Ziehl-Neelsen. Des organismes acido-résistants étaient présents dans les frottis labiaux chez 46 pour cent des femmes mais étaient présents chez seulement 4,5 per cent des frottis urétraux des hommes. La circoncision ne semblait n'avoir aucun rapport sur l'incidence des organismes acido-résistants chez les hommes et semblait aussi ne pas avoir de relation avec la présence ou l'absence d'une érosion cervicale chez leur partenaire sexuelle. On pense qu'il est improbable que les organismes acido-résistants jouent un rôle causal dans l'urétrite non-spécifique.

ADDENDUM

During the preparation of this paper, Döderlein's bacillus was found in the urethral smear of one of the patients in this series (Fig. A) and in the centrifuged deposit of the first urine specimen of another (Fig. B).

FIG. A.—Döderlein's bacillus found in urethral smear, Ziehl-Neelsen, $\times 1,000$.

FIG. B.—Döderlein's bacillus found in first urine specimen, Ziehl-Neelsen, $\times 1,000$.